RUBBER manufacturers association

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February 19, 2002

National Highway Traffic Safety Administration
Docket Management, Room PL-401
400 Seventh Street, S. W.
Washington, DC 20590

Re: 49 CFR Parts 567, 571, 574 and 575
Docket Number NHTSA-01-11157
Tire Safety Information
Notice of Proposed Rulemaking (NPRM)

Dear Sir or Madam:

Attached herewith are comments from the Rubber Manufacturers Association (RMA) in response to the above-captioned NPRM. RMA represents more than 120 companies that manufacture various rubber products. These member companies include every major domestic tire manufacturer including: Bridgestone/Firestone Americas Holding, Inc.; Continental Tire N.A.; Cooper Tire & Rubber Company; The Goodyear Tire and Rubber Company; Michelin North America, Inc.; Pirelli Tire North America; and, Yokohama Tire Corporation.

As an industry committed to safety, RMA and its member companies supported the TREAD Act. We also support the goals of Section 11 of the Act, which are to assist consumers in identifying tires subject to a recall, and to ensure public awareness on the importance of observing motor vehicle tire load limits and maintaining proper tire inflation levels. This NPRM contains two concepts that could result in major improvements in how tire safety information is communicated to consumers. First, changes to the content, layout, and location of the vehicle placard and tire inflation pressure label, if modified in accordance with RMA's comments, will be major achievements that will improve tire safety for millions of American drivers. Second, the explanation in the vehicle owner's manual of critical sidewall labeling symbols, including the Tire Identification Number (TIN), will help consumers identify critical tire information in the event of a recall. While we commend the agency for recognizing the potential safety benefits associated with these proposals, overall, RMA's analysis of the NPRM has disclosed significant problems with the four specific issues addressed in summary fashion below, and explained further in the enclosed comments.

Continued.

1. Load Service Factor

First, while we have no problem with the proposed revision of FMVSS 110 to apply to passenger cars and other light vehicles with a GVWR of 10,000 pounds or less, the agency, in so doing, should not relax the current standards for tire selection. This NPRM, as written, will permit a load increase of 10 percent for passenger car tires used on light trucks, vans, SUVs, and trailers. This means a 10 percent load increase would be possible on the same tires applied to the same vehicles that inspired the TREAD Act. Such a result is unacceptable to RMA and would be the exact opposite of the intent of the TREAD Act. FMVSS 120, S5.1.2, currently requires that the load rating of a passenger car tire be reduced by dividing by 1.10 when installed on SUVs, vans, light trucks, and trailers. The requirement for this load service factor is omitted in NHTSA's proposal. We strongly recommend that the existing requirement be maintained in the new rule.

2. Reordering the TIN Groups

Second, reordering TIN groupings for all highway-use tires (passenger, light truck, truck, bus, trailer, and motorcycle) will set in motion changes of dubious benefit that will result in mass confusion in the event of a tire recall. Significant changes to computer data base systems will be required. The total economic costs, required of RMA member companies to comply with the proposed TIN reordering, are estimated at **$83.9 million**. In trying to simplify the TIN—which is currently understood and accepted globally—does the agency really want to embark on a multi-year transition period, spanning at least another decade, during which there will be tires in circulation with two conflicting identification schemes? The current TIN itself does not pose a problem and therefore should not become part of a solution that will incur enormous costs, but, even more importantly, cause much confusion.

3. Requiring the TIN on Both Sidewalls

Third, given the complexities of today's manufacturing environment, which prioritizes continuous production, no uniform procedures exist to safely place the TIN on both sides of light vehicle tires (P-metric and Light Truck) without shutting down the mold press. In a mass production situation, it is dangerously unsafe and almost certainly prohibited by OSHA regulations to weekly insert an employee into the hot (+300°F), top-half of a modern tire press. Tire manufacturers would welcome the opportunity to host NHTSA personnel on a plant tour to experience first-hand the complexities and safety hazards involved in placing the TIN on both sides. RMA members estimate the total one-time costs to place a TIN on both sidewalls are **$113.5 million**. Additionally, the total annual estimated costs for labor and lost production to make weekly changes to the second TIN are **$224.1 million**. The significant, additional employee safety risks in the tire factories and overwhelming economic costs

incurred to provide this convenience are simply not justified, especially when a viable alternative is available.

Because of considerable risks to worker safety and the major economic costs associated with this proposal, the TIN should be required on only one side of the tire. We offer, on page 7 of our comments, alternatives to assist consumers in identifying tires subject to a recall. Specifically, a partial TIN—including everything except the date code—should be allowed on one side of the tire while the other side would continue to have the full TIN. Thus, regardless of which sidewall is mounted out, consumers will always have readily available codes on manufacturer identification and tire size. This proposal will also effectively address worker safety and economic concerns. This is a reasonable compromise and will provide consumers with convenient access to information on both sidewalls in the event of a recall and, if phased in over five years, offers the opportunity for eliminating the major cost expenditures.

4. Phase-in Time

Fourth, proposed lead times of September 1, 2003, and September 1, 2004 for compliance by all passenger car tires and light truck tires, respectively, will not be possible. There is simply not enough mold shop capacity in the world to accomplish it, especially since the proposed revisions to 49 CFR §574.5 will also mandate changes to all medium and heavy truck and bus tires. Pending details of a Final Rule, it is impossible to predict a realistic lead time, but if the agency rejects RMA's comments to maintain the current TIN order and placement, a phase in period of five years or more will be required to fully implement the changes proposed in this NPRM.

In summary, we strongly urge the agency to: 1) retain the existing load service factor requirement for passenger car tires used on light trucks, SUVs and vans; 2) maintain the current ordering of TIN groups; 3) require the full TIN on one side only, but allow a partial TIN on the opposite sidewall; and 4), provide for a phase-in period of at least five years which will allow existing molds to be replaced in a cost-effective manner. In the enclosed comments, we expand on the issues briefly discussed in this cover letter and include comments on several other areas of concern to RMA within the NPRM. If you should have any questions regarding our comments, please do not hesitate to contact Ann Wilson, Senior Vice President, Government Relations, or Steven Butcher, Vice President, Technical and Standards.

Sincerely,

Donald B. Shea

Comments of the

RUBBER MANUFACTURERS ASSOCIATION

On

Notice of Proposed Rulemaking
Tire Safety Information
49 CFR Parts 567, 571, 574 and 575
Docket No. NHTSA-01-11157

19 February 2002

The Rubber Manufacturers Association (RMA) appreciates this opportunity to review and comment on the content and proposals of this NPRM on Tire Safety Information. RMA represents more than 120 companies that manufacture various rubber products. These member companies include every major domestic tire manufacturer including: Bridgestone/Firestone Americas Holding, Inc.; Continental Tire N.A.; Cooper Tire & Rubber Company; The Goodyear Tire and Rubber Company; Michelin North America, Inc.; Pirelli Tire North America; and Yokohama Tire Corporation.

Our key areas of concern, as introduced and summarized in the foregoing cover letter, are presented in more detail in Sections I-IV below. We also provide additional comments and attachments on a number of other topics of concern to RMA in Sections V-IX below.

I. Load Service Factor

Part 571 – FMVSS
§571.110 Standard No. 110—Tire selection and rims for motor vehicles with a GVWR of 10,000 pounds or less

Comments on including vehicles other than passenger cars in the scope:

RMA has no objection to NHTSA's proposal to include all light vehicles under 10,000 GVWR in FMVSS 110 as long as the tire selection requirements are not relaxed. However, NHTSA's proposal as written will permit a load increase of 10 percent for passenger car tires used on light trucks, vans, SUVs, and trailers. This result is clearly opposite the intent of Congress in passing the TREAD Act. We strongly recommend that the current procedures for determining the load rating of a passenger car tire used on other vehicles be maintained.

FMVSS 120 S5.1.2 currently provides "When a tire subject to FMVSS No. 109 is installed on a multipurpose passenger vehicle, truck, bus, or trailer, the tire's load rating shall be reduced by dividing by 1.10 before calculating the sum (i.e., the sum of the load ratings of the tires on each axle, when the tires' load carrying capacity at the recommended tire cold inflation pressure is reduced by dividing by 1.10, must be appropriate for the GAWR)". This 1.10 service factor reduction in load rating has been omitted from NHTSA's proposal.

It is appropriate to reduce the load rating for passenger car tires used on light trucks, vans, SUVs, and trailers for the following reasons:

1) Higher stress on the tire due to the higher center of gravity of these vehicles;
2) More severe service conditions as compared to passenger cars;
3) Greater potential for overload due to open cargo areas and increased likelihood for towing; and
4) More tire related problems on light trucks, SUVs, and vans as discussed in Section IV, C of the NPRM (see 66 Fed. Reg. pages 65542 and 65543).

Therefore, RMA recommends the following specific changes to the proposed 571.110:

1) Add a new paragraph S4.2.3 to 571.110 as follows:

   S4.2.3 When a passenger car tire is installed on a vehicle other than a passenger car as covered by this regulation, the tire's maximum load rating and the tire's load carrying capacity at the recommended cold inflation pressure shall be reduced by dividing by 1.10.

2) Revise proposed S4.3.2 as follows:

   (b) It is appropriate for the load limits as calculated in accordance with S4.*2* and adjusted per S4.2.3, if applicable;
   (c) The tire load rating, adjusted per S4.2.3, if applicable, specified …

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Load Service Factor, Normal Load, and Load Reserve

NHTSA does not discuss the removal of this load reduction requirement in the NPRM, but implies that it is no longer needed because the requirement for normal load on the tire stated in S4.2.2 of FMVSS 110 will now apply to these vehicles (66 Fed. Reg. page 65556). NHTSA indicates that "S4.2.2 will be extended to cover SUVs, vans, trailers, and pickup trucks for the first time, which means that P-metric and LT tires used on these vehicles will have a load reserve similar to P-metric tires used on passenger cars".

Since NHTSA has used the term "load reserve", it is important to clarify the differences among the load service factor discussed above, the requirement for normal load stated in S4.2.2 of FMVSS 110, and load reserve.

> The load service factor (for passenger car tires used on vehicles other than passenger cars) is an adjustment in the load rating of the tire when that tire is used in different service conditions. This simply means that the proper load and inflation for a tire depend on the service conditions. When the service conditions are more severe, the load should be less and/or the pressure should be higher. This is the case for passenger car tires used on vehicles other than passenger cars.
>
> The normal load requirement is stated in S4.2.2 of FMVSS 110 and will apply to all light vehicles per NHTSA's proposal. This section requires that the vehicle normal load on

the tire shall not be greater than the test load used in the high speed performance test specified in S5.5 of 571.109 (139) for that tire (NHTSA proposes this test load to be 85 percent of the tire maximum load rating). NHTSA states that this requirement provides a load reserve. This is not correct when the vehicle is at maximum load. Please see **Attachment I** for a more detailed discussion of this subject.

A load (or pressure) reserve is created when the application inflation pressure is higher than the minimum pressure required to carry the application load as determined by industry standards. If a vehicle is operating at less than maximum vehicle load and the pressure is adequate for the maximum vehicle load, a load/pressure reserve is present. A load/pressure reserve will be present at maximum vehicle load if the placard pressure is greater than the minimum pressure required to carry the maximum vehicle load.

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Although it is a separate issue from the 1.10 load service factor discussed above, since the NHTSA refers to load reserve, we would like to remind the agency that, pending the Final Rule on FMVSS 138, which deals with allowable activation tolerances required by tire pressure monitoring systems, necessary safety pressure/load reserve requirements will need to be added to FMVSS 110. Such an update is required in order to close the loophole that will otherwise allow tires on fully loaded vehicles to be operated indefinitely at inflation pressures inadequate to carry the maximum load of the vehicle. This subject is discussed in more detail in ***Attachment II****.*

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II. Reordering TIN Groupings

Part 574 – Tire Identification and Record Keeping
§574.5 Tire identification requirements

RMA strongly opposes the NHTSA proposal to rearrange existing groupings contained in the current TIN. This proposal, if enacted, will result in mass confusion in the event of a future recall, and chaos for industry personnel including tire and vehicle manufacturers, dealers, retreaders, commercial tire users, and last but not least, the average driver. Moreover, this proposal will place an enormous economic burden on the industry. This seemingly small change will have ramifications around the world and could become one of the least cost-effective proposals ever suggested by the agency.

Current TIN requirements and usage:

The current TIN regulation, 49 CFR § 574.5, applies to all highway-use tires, including tires for passenger cars, light trucks, SUVs, vans, trucks, buses, trailer, and motorcycles. The DOT TIN is recognized and used by manufacturers around the world. As presently constituted, the TIN can contain as many as twelve alphanumeric characters for new tires and thirteen for retreaded tires. The first grouping consists of two or three characters (depending on whether the tire is new or retreaded) for the Manufacturer's Identification Mark. The second grouping consists of two

characters for the Tire Size or Retread Matrix Code. The third grouping consists of no more than four characters for use at the Option of the Manufacturer. The fourth grouping consists of four numerical characters to identify the Week and Year of Manufacture. This configuration is well known and accepted throughout the industry.

The full DOT serial number including the DOT, Manufacturer's Identification Mark, Tire Size, Tire Type Code, and Date of Manufacturer are critical in identifying specific tires for recall. A complete match of the full TIN (for example, DOT MA L9 ABCD 0301) is required to identify specific tires in the event of a recall. Reliance on consumers to accurately report tire name and size information is not as dependable as the data (manufacturer's identification mark and tire size code) found on the TIN. Indeed, with the expanding mandate for broader, more detailed computerized record keeping, any future recall will require use of the full array of TIN data, including the optional characters.

NHTSA's proposed changes:

The agency proposes, in this NPRM, to reorder the Date of Manufacture (fourth grouping) from the last four numerals in the TIN to characters 3 through 6 or 4 through 7 depending if the tire is new or retread. NHTSA argues, "The proposed revisions to the sequence of information in the TIN would make the TIN easier for consumers to read and understand for recall and other purposes." (See 66 Fed. Reg. page 65552.)

Reasons for not reordering current TIN groupings:

RMA strongly objects to the proposed rearrangement of the TIN. We feel that this proposal, if approved, will cause more problems than it will solve for the following reasons:

- No Rationale to Support Change

  NHTSA has not provided any information to support the argument that moving the date of manufacture to characters 3 through 6 makes it easier to find. In fact, with the possibility of having other digits (rather than letters) immediately before and after the date code, it will be more difficult for the consumer to correctly read the date code. The current system of reading the first two and the last four characters in the serial number, for the manufacturer's identification and date code, is surely as accurate and as easy as reading the first six characters, if not more so.

  The only reliable source of post-manufacture identification of tires is through the TIN. Other sidewall data is neither collected nor reported in a sufficiently consistent format to reliably identify a tire. To introduce a new TIN format, even if only temporarily, would be a great disservice to the American public and drivers throughout the world.

- Confusion and Chaos for Consumers and Industry

  For the next several years (perhaps as many as 12 years, or until all tires made using the current TIN system are no longer in use) the TIN grouping sequence will exist in two different orders. In the event of a recall the situation could become chaotic for consumers who will be asked to determine which grouping sequence applies to their tires. The resulting confusion and delays in identifying tires could prove detrimental to safety.

- Database Management and Record Keeping

This change will have a negative effect on internal database systems for every tire manufacturer. It will significantly complicate the ability of manufacturers to comply with the reporting requirements of the Early Warning Reporting System. Database systems and information gathering systems will have to be revised and reprogrammed to track the reordered TIN. At the same time, tire and vehicle manufacturers will still be required to maintain data on the existing TIN sequence. Tire manufacturers will be required to establish and maintain multiple database tracking systems, which will complicate the matter and increase the possibility of error and confusion.

- Re-education Requirements

This change will require re-education of those that deal with TIN information around the world. Tire dealers and others familiar with the TIN are accustomed to the date of manufacture at the end of the TIN and will be confused by a change. Various publications exist that explain the location of information in the TIN; while they can be revised, old copies will exist for many years.

- Costs for Reordering

Since Part 574 applies to all highway-use tires (passenger, light truck, truck, bus, trailer, and motorcycle), all tire molds will have to be modified to accommodate this change. In addition, information systems would have to be reprogrammed. The total RMA member cost to reorder the TIN is estimated at $83.9 million. Please see **Attachment III** for a more detailed breakdown of the costs associated with this proposal.

- Changes to Owner's Manual

The agency is proposing, in 575.6 Requirements, (a)(4), (i), that the owner's manual include a description and explanation of each marking on the tire, including the TIN. This action will, of itself, constitute a major improvement in tire safety information. Thus consumers will be able to learn about groupings within the TIN and that the date code is always the last four digits. Rearranging the TIN, with all the unwanted negative side effects, will be counterproductive to improving tire safety information.

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III. TIN on Both Sidewalls

§571.139 Standard No. 139; New pneumatic tires for motor vehicles with a GVWR of 10,000 pounds or less S5.5 Tire Markings

We continue to maintain our position that the **TIN should be required on only one side of the tire** for the following reasons.

1. Except for a very few tires, which are produced on a limited basis, it is current mass production practice in the tire industry to have the TIN located in the bottom half of the mold and in the front portion of the press. This location is dictated by safety concerns for the workers when changing the weekly date code. In this location, and only this location, can the weekly code be changed in a hot mold with reasonable worker safety.

   Safety issues associated with weekly changing of the date code on the top half of the mold are more complex than when reviewed by the agency in 1980. At that time, virtually all molds were of the "clam shell" configuration. These molds open widely and with some type of temporary platform it may have been possible to access the top half of a hot mold. More importantly, the factories worked five-day weeks so the molds were cold on weekends when the TIN was changed.

   Today tire plants operate on a 24-hour/7-day per week schedule; the molds are ALWAYS hot. Also, today there is greater complexity in types of tire curing presses and loading mechanisms. There are both hydraulic and mechanical presses (as well as hybrids) with many different opening mechanisms, which require various physical orientations of the mold. These new mold/press types all present various levels of potential safety risks associated with a requirement to change date codes on a weekly basis in molds with temperatures of +300^{o}F. The segmented mold is now more common. These molds have a "vertical lift" or a "vertical and slide back" opening system. Both of these new systems result in a much smaller mold opening that usually eliminates access to the top half by an operator. On the great majority of tire presses in use today throughout the world, the degree of press opening, size of the press, press operating system, and type of molds used make it impossible or completely unsafe to have a worker attempt to change a TIN in the top half of a hot mold.

   In all cases, the bottom half, front portion, of the mold can still be safely accessed from the front of the press. But, in order to change the weekly date code in the top half, the operator would, in many cases, be required to climb into the press and, while working overhead with heavy gloves, hold the new date insert precisely in position while attaching it. Changing the date code weekly in the top half, as described in the previous sentence, would pose an unacceptable safety risk. Some RMA members have reported that, with very few exceptions, to make the weekly date code change in the top half of a hot press, using their particular equipment, would require the physical removal of the mold from the press in order to comply with OSHA's lockout/tagout regulation, 29 CFR §1910.147. This is estimated to cause up to eight hours of downtime per press/per week when the weekly TIN is in the top half of the mold.

   Obviously the complexity described above impacts production rates and adds to the cost of implementation that is reflected in the numbers below.

2. The initial cost to modify all 101,148 molds for the addition of the second DOT code will be $113.5 million. In addition to the initial mold modification cost, there is a significant ongoing cost in manpower and lost production in order to change the DOT code in the top half as discussed in Reason 1 above. This ongoing cost is estimated at $224.1 million per year. Further, this number does not capture the potential safety and economic losses. The cost to accomplish this change per the NPRM adds no value to the performance of the tire and there is insufficient global mold shop capacity to accomplish such a

modification in the specified time. A summary of the estimated global costs for RMA member companies is included in **Attachment III**.

3. The addition of a second TIN is a matter of very occasional convenience, not directly affecting tire safety. It is not cost justified based on the anticipated infrequency of use.

   We know of no other products that require part/serial numbers on both sides, or in more than one location. Further, a number of critical components, which may be replaced, are found on vehicles that are subject to Federal Motor Vehicle Safety Standards (FMVSS) and that are even more difficult to identify in the case of a recall (e.g., brake hoses covered by FMVSS 106).

RMA recognizes NHTSA's desire to improve the "visibility" of the TIN on future production tires. However, given the safety concerns that have been outlined above and the resultant extremely high cost of putting the full TIN on both sides of the tire, we feel that one of the following alternatives, in order of priority, should be considered.

1. Require a partial TIN on the opposite sidewall from the regular TIN. Codes for the manufacturer's identification, tire size, and optional information will be included in the partial TIN. The date code, which requires weekly changes, will continue to be placed on one sidewall only as part of the full TIN. In the event of a recall, consumers will have convenient outboard access to either the full TIN, or the partial TIN, depending on how the tire is mounted. If the sidewall with the partial TIN happens to be mounted outboard, the consumer will be able to easily determine if their tire fits the target manufacturer's identification, tire size, and special optional codes. If their tire fits each of these codes, they will then need to check the final criteria—the date code—to confirm a complete match. This final step may require taking the vehicle to a service center where the inboard sidewall can be examined to read the date code. This solution represents a significant improvement and a reasonable approach, striking a balance among the needs to assist consumers in identifying tires subject to a recall, while addressing the significant worker safety and economic issues involved. This requirement should be prospective and phased in over a five-year period as existing molds are replaced so as to control the cost.

2. Require the TIN on only one side of the tire and also show the TIN for the original equipment tires in an appropriate section of the vehicle owner's manual by means of an adhesive label. When tires are replaced, the tire dealer could provide this same information by including it in a "Tire User's Manual" which would also contain general information on care and service of tires.

3. Require placement of the TIN on the intended outboard side of Passenger and Light Truck tires. This requirement should be prospective and phased in over a five-year period as existing molds are replaced so as to control the cost. Manufacturers would indicate which side of the tire to mount outboard. Also, the industry would work cooperatively with the agency developing and administering an education program instructing dealers and tire installers to mount tires with the TIN outboard. This is the usual method of mounting in many foreign countries and several vehicle manufacturers use the practice.

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IV. Phase-in or Lead Time

A phase-in period of more than five years will be required to implement the changes proposed in this NPRM. There is not enough mold shop capacity in the world to rework all passenger tire molds by September 1, 2003, and all light truck and trailer molds by September 1, 2004. The proposed reordering of TIN groupings, as per changes to FMVSS 574, will require changes to all medium and heavy duty truck tires, as well as bus tires. Additionally, the further requirement to place the TIN on both sidewalls of passenger and light truck tires will require further mold changes. Basically every highway tire mold throughout the world that may be used to produce tires for potential use in the United States will need to be reworked. RMA members estimate the global cost to reorder the TIN on existing molds will cost $83.9 million. The cost to add a second TIN to 101,148 relevant molds (not including truck and motorcycle molds) is estimated at $113.5 million. The estimated total one-time cost for RMA member companies to add a second TIN and reorder the TIN is $197.4 million.

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V. Placard Content, Layout, and Placement

§571.110 Standard No. 110
S4.3 Placard

We support the proposed content, layout, and placement of the placard, including both options (i.e., Figure 1: Vehicle Placard, or Figure 2: Tire Inflation Pressure Label). The use of a tire icon, contrasting colors, visual separation of the tire size and inflation pressure, plus addition of the statement, "The combined weight of occupants and cargo should never exceed XXX pounds" will each foster clearer, more concise communication to the consumer. We also commend the agency for requiring the placard to be affixed to the B-pillar, or if the vehicle does not contain a B-pillar, the driver's side door edge. These combined changes will present critical safety information in a more user-friendly, convenient format and location. As a result, future drivers will come to instinctively look to a common location for critical tire safety data. This action by the agency, along with the proposed revisions to the owner's manual, will comprise a major step forward in addressing the confusion that too often, as confirmed by both industry and NHTSA consumer surveys, impede effective communication of tire safety data.

The agency should require a tire service description (Load Index Number and Speed Symbol) as part of the tire size information shown on the vehicle placard and tire inflation pressure label. This information is already provided in the examples shown in Figures 1 and 2 (see 66 Fed Reg. pages 65562 and 65563). Light vehicle tires routinely come with a service description. Many countries already require it. This information is important to consumers and provides the agency with an excellent opportunity to formally recognize an existing condition while strengthening its influence on global harmonization of tire regulations.

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VI. Height of TIN Characters

Part 574 – Tire Identification and Record Keeping
§574.5 Tire identification requirements

Height of TIN characters:

In Figures 1 and 2 (see 66 Fed. Reg. pages 65565 and 65566), the agency does not show any tolerance on the ¼ inch character height or any dimensions on the spaces shown between groupings of characters in the TIN. The agency states, "a requirement for a uniform TIN font size would significantly improve the readability of the TIN". The ¼ inch should be a minimum height. The TIN should be located in close proximity to the DOT symbol, with a 6-inch maximum spacing width for the tire identification number specified.

Exemption for tires under 13-inch bead diameter or 6-inch cross-section:

*We would also like to point out an apparent unintended omission to the material found in Figures 1 and 2. Until 1999, the ¼ inch minimum height dimension contained an asterisk that referred to the following statement: "*Use 5/32 inch lettering for tires of less than 6.00 inch cross-section width as well as those less than 13-inch bead diameter." In the Thursday, July 8, 1999, Federal Register, Final Rule announcement (49 CFR Part 574, docket number 99-5928) changing the date code from a three to a four-digit number, the revised Figures 1 and 2 did not contain the asterisk or the statement. This is certainly an inadvertent change and while it does not affect the labeling of the great majority of light vehicle tires, we call the agency's attention to it in order to correct the oversight. The oversight does have a large impact on motorcycle tires.*

Proposed revisions to Figures 1 and 2, with the suggested changes cited in the above two paragraphs are shown in **Attachment IV.**

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VII. Proposed Tire Labeling Requirements

§571.139 Standard No. 139; New pneumatic tires for motor vehicles with a GVWR of 10,000 pounds or less
S5.5 Tire Markings

Maximum Permissible Inflation Pressure:

The maximum permissible inflation pressure should be removed from the sidewall labeling. Tire inflation pressures are vehicle specific. Thus, this information should be obtained from the vehicle placard and/or vehicle owner's manual. As long as the maximum permissible pressure is stamped on the tire, consumers will continue to use this information incorrectly. Consider that FMVSS 109 currently specifies that, 240 kPa (35 psi), 300 kPa (44 psi), or 350 kPa (51 psi) be selected as the "maximum permissible inflation pressure for standard load passenger car tires". Most standard load passenger car tires reach their maximum load carrying capacity at 35 psi, yet

many tires today routinely come with 44 or 51 psi stamped on the sidewall as the "maximum permissible inflation pressure". While increasing the pressure beyond 35 psi derives no additional load carrying capacity, there may be other desirable service conditions such as higher speeds, the need for load/inflation reserves to accommodate tire pressure monitoring systems, or special handling characteristics that would justify an inflation pressure beyond the maximum (35 psi) load carrying capacity. The point is, that maximum inflation pressure listed on the tire's sidewall is often substantially different from the vehicle manufacturer's recommended pressure. Because of confusion and lack of understanding, consumers and even some service technicians, sometimes over-inflate tires by inflating to the number found on the sidewall.

At a time when both the agency and industry, in concert with other like-minded, safety conscious groups, are making extra efforts to communicate clear, concise, accurate tire inflation information to drivers, why must the agency continue to perpetuate a labeling requirement for which all stakeholders agree misinforms, confuses, confounds, and mystifies consumers? Consumers need the correct tire inflation number for their vehicle if they are to avoid under or over-inflation. The considerable enhancements to the contents, presentation, and accessibility of the vehicle and tire placards, coupled with the proposed new tire information updates to the owner's manual, will significantly diminish the confusion surrounding correct tire inflation pressure. Unfortunately, unless the "maximum permissible inflation pressure" is removed from the sidewall, a mixed message on tire inflation pressure will continue to be sent, and confusion will still be the result. Since we (i.e., government, industry, consumer groups, etc.) all want drivers to know where and how to find, comprehend, and apply the correct tire inflation pressures for their vehicles, we (again as government, industry, and consumer groups) should be able to do better than just reaffirm a labeling requirement that all parties agree is confusing.

The inclusion of light truck tires in proposed 571.139 presents another problem with a requirement to mark "maximum permissible inflation pressure". NHTSA has not proposed any specific pressures that would apply to these tires. Such tires are now marked with a maximum load rating and corresponding inflation pressure per 571.119. These pressures are not maximum pressures. In fact, they are the minimum pressures required for the maximum load rating. These pressures are increased for operation at specific service conditions (please refer to Tire and Rim Association 2001 Yearbook, page 2-04). Therefore, the NHTSA proposal would require establishment of new maximum permissible inflation pressures for light truck tires that are higher than the current marked pressures. The result will only add to the confusion about which pressure to use. A requirement to stamp "Maximum permissible inflation pressure" on the sidewall of all light truck tires will not only cause reworking of all existing light truck tire molds, but also bring all of the confusion and misinformation currently associated with the use of this term for passenger car tires.

RMA anticipates that NHTSA will propose that maximum permissible inflation pressure marked on the tire be used to determine the test pressure for compliance testing. We suggest that maximum permissible inflation pressure marking is not required for this purpose. RMA has proposed alternate methods in the past and is willing to work with NHTSA on this issue.

If the agency chooses to reject our suggestion to remove the requirement for a "maximum permissible inflation pressure" label from tire sidewalls, the proposal described below may be something the agency might consider.

"*Maximum permissible inflation pressure* means the maximum cold inflation pressure to which a tire may be inflated." (This is as defined in 49 CFR §571.109, Section 3, Definitions.) This pressure is generally not the vehicle manufacturer's recommended inflation pressure for tires on the vehicle. This definition and the limitation it imposed was considered acceptable for passenger car tires when it was first established in FMVSS-109. However, this definition has never been applied to the inflation pressure marked on truck tires, light truck tires, bus tires, trailer tires, motorcycle tires, mobile home tires, or any other type of tire other than passenger car tires.

Now it is proposed that the definition and its limitation be extended to light truck tires. That would alter or eliminate long-standing and necessary tire industry standards which allow the usage of limited additional inflation pressure above the inflation pressure marked on the sidewall of light truck tires for specific usage conditions.

We believe this result may be an unintended consequence in this rulemaking. In any event, to eliminate this consequence and to accommodate both passenger car tires and light truck tires within FMVSS-139, we propose that the terminology and definition of "maximum permissible inflation pressure" be replaced by "reference inflation pressure". RMA recommends that NHTSA adopt the following definition of this term:

"*Reference inflation pressure* means the pressure marked on the tire sidewall associated with the tire load range."

This proposal fulfills the perceived need in the United States to have an inflation pressure marked on the tire sidewall as a regulatory requirement. It will also allow the tires covered by proposed FMVSS-139 to remain marked with their current load and inflation markings.

***

<u>Maximum Load Rating</u>:

The maximum load rating as required on the tire sidewall for passenger car and light truck tires is of little value to consumers and should be replaced with a Load Index number as part of the globally accepted tire service description. For those individuals who might want to see the correlation of load index numbers to pounds and kilograms, simple charts could be included in owner's manuals, and/or made available at tire dealers, or through tire manufacturer web sites. The agency plus other tire related consumer groups and associations might also be expected to provide such information free to any interested party. RMA would certainly do so.

The maximum load rating found on the sidewall of a tire is of little value to consumers unless the actual sum of the vehicle weight—including total combined passenger and cargo weights—at the applicable wheel position is known. Even when the GAWR and the recommended tire inflation pressure is given, it is neither easy to calculate nor intuitively logical for consumers to determine if their tire has sufficient load/pressure capacity to carry the vehicle load. This is because of the unequal load distribution between the front and rear axle, and the difference between

recommended pressure versus maximum inflation pressure. This is particularly true as the total weight of the vehicle approaches the GVWR. By adding the proposed statement to the vehicle placard, "The combined weight of occupants and cargo should never exceed XXX pounds," the agency is taking a positive step to help consumers safely manage their vehicle/tire load capabilities.

With the addition of the new maximum combined weight limit, the maximum load rating on the tire will become even less relevant to consumers. Vehicle manufacturers know the maximum design GVWR, GAWR, and the actual total weight distribution for each wheel position on the vehicles they produce. Therefore, vehicle manufacturers can select an appropriate tire size and inflation pressure to carry the maximum load the tire is ever expected to see. Hopefully, some reserve is built into this determination. It falls on consumers, then, to ensure that they follow the vehicle manufacturers' recommendations for proper tire size and inflation pressure when replacing and maintaining their tires. Consumers have an additional critical responsibility, which is that they must not exceed the maximum combined weight of occupants and cargo as allowed by the vehicle manufacturer. Until now that number was seldom clearly identified for consumers. Now, however, the agency is making it easier for consumers to complete their responsibility by proposing placement of the maximum combined weight limit on each vehicle placard.

With the addition of this requirement to the vehicle placard—which we fully support—the matter of vehicle load management is simplified considerably for consumers. However, the agency needs to go one step further and require the tire service description to become part of the tire size information placed on the tire and vehicle placard/tire inflation pressure label. Today light vehicle tires (passenger car and light truck tires) almost universally come with a service description (Load Index and Speed Symbol) as part of the tire size information. For instance, in samples for both the Vehicle Placard and the Tire Inflation Pressure Label as shown in Figures 1 and 2, (66 Fed. Reg. pages 65562 and 65563), the tire size designation, including service description, is given as P195/70R14 90S. The implied, though unstated, message from the agency is that when replacing tires on a vehicle with this placard or tire label, consumers should purchase tires that are at least equal to the recommended Load Index (90) and speed symbol (S). By so doing—and so long as they do not exceed the specified combined weight of occupants and cargo and maintain the recommended tire pressure—consumers will not need to worry about overloading their tires. It seems to us that this procedure is straight forward (match 90S on placard with 90S on the tire), logical, and intuitively simple.

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<u>Cord Material Used and Number of Plies</u>:

For the vast majority of light vehicle tires, with the possible exception of light truck tires load range "E" or higher, there is little or no benefit in requiring labels for generic cord material and number of plies. Elimination of this labeling requirement for light vehicle tires will simplify sidewall imagery and provide for better communication of essential information.

Providing information on the generic name of cord material and number of plies provides no safety value to the consumer. The agency recently stated (Federal Register/Vol. 67, No. 7/Thursday, January 10, 2002, Docket No. NHTSA 2001-10312; Notice 2; also see Federal Register/Vol. 66, No. 233/Tuesday, December 4, 2001, Docket No. NHTSA 2001-10288; Notice

2) that "…we believe that it is likely that few consumers are influenced by the tire construction information (i.e., the number of plies and cord material in the sidewall and tread plies) provided on the tire label when deciding to buy a motor vehicle or tire." The agency further stated, "Although tire construction affects the strength and durability neither the agency nor the tire industry provides information relating tire strength and durability to the number of plies and types of ply cord material in the tread and sidewall."

Some have stated that the type of cord material and number of plies is needed for repair, retread, and recycling purposes. In fact, this information is not critical to the repair, retread, or recycling of passenger car tires. Repairs to passenger car tires are limited as to location, size, and number allowed and have established industry procedures that are not dependent on type and number of plies. Passenger car tires are rarely retreaded today. A few light truck tires (load range "E") are retreaded, for which the type and number of plies may be useful for retreading purposes. RMA does support a requirement for labeling the type of cord material and number of plies for all medium and heavy tuck and bus tires which are retreaded in vast numbers. The bead package of all highway tires contains steel. Steel is also found in the body plies of some light truck tires (particularly load range "E" or higher). Most passenger car tires are built using synthetic (polyester or rayon) cord material for the body plies. Both passenger and light truck tires often come equipped with steel belt plies. Thus, both steel and synthetic cord material are commonly found in tires used for light vehicles. Tires are not normally segregated for recycling purposes based on their cord type and number of plies. Therefore, recycling centers routinely process tires having a combination of both steel and synthetic cord materials.

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VIII. Part 575 – Consumer Information Regulations

Owner's Manual:

We support the proposed discussion of the items specified by this section in the owner's manual. Regarding the statements in Figure 5 (see 66 Fed. Reg. page 65555), we could accept a requirement that they be included verbatim in the owner's manual. However, we would like to make the following comments. The requirement to show when a pressure higher than the recommended (up to the maximum inflation pressure) should be used based on the vehicle load should not suggest that the tires can be loaded above their maximum capacity by increasing pressure to support the extra load. This is incorrect.

The content of proposed section 575.6 (a)(4) (ii), (E), "When to use either the recommended inflation pressure or a higher inflation pressure…" and also Item 7 in the box, "Steps for Determining Correct Load Limit" (see 66 Fed. Reg. page 65567), are confusing as to whether they are referring to pressures for normal loads or maximum loads. The pressure for a normal load can be increased, usually up to 35 psi with a resulting increase in load carrying capacity for a standard load passenger car tire. However, for the same standard load passenger car tire, any inflation pressures beyond 35 psi up through the maximum permissible inflation pressure marked on the sidewall, such as 44 or 51 psi, will not result in any greater load carrying capacity for the tire. There are reasons for increasing the inflation pressure of standard passenger car tires beyond the 35 psi maximum load carrying limit, including but not limited to: when there is a need to provide for a load/pressure reserve; when the car is driven at higher speeds; or, for

special handling characteristics. Care should be taken to avoid the inference that an increase in pressure will automatically result in greater load carrying capacity for the tire.

We would also recommend that instructions on the proper use of the spare tire be included in the owner's manual requirements.

The owner's manual should explain that correct tire inflation pressure is vehicle specific and thus cannot be given on the sidewall.

The owner's manual should define the term "tire service description" as follows: "Combination of the tire's load index number and speed symbol." Load Index should be defined as: "A numerical code associated with the maximum load a tire can carry at the speed indicated by its Speed Symbol under specified service conditions up to 210 km/h (130 mph)." Speed Symbol should be defined as: "A symbol indicating the speed category at which the tire can carry a load corresponding to its Load Index under specified service conditions." It should be explained that on most passenger car tires and many Light Truck tires the service description is shown just after the tire size designation, for example P195/70R14 90S. The 90 is the Load Index and the S is the speed symbol. The consumer should be cautioned that when purchasing replacement tires care should be taken to select only tires with a load index number equal to or greater than that which came on the vehicle as original equipment (and as specified on the vehicle placard and/or tire inflation pressure label). Likewise the speed symbol should be equal to or greater than the original equipment tires, as shown on the vehicle placard or tire inflation pressure label. Labeling light vehicle tires with a service description is a regulatory requirement in many countries and is normally included on tires in North America.

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Uniform Tire Quality Grading Standards (UTQGS):

We agree that because of time constraints imposed by the TREAD Act, it is best not to consider revisions to the UTQGS at this time. We are encouraged, however, that the agency has indicated that it will study and analyze the various issues involving this topic in a future rulemaking. We look forward to working with other stakeholders to improve the presentation and format for better communicating this type of consumer information. On a long-term basis the RMA recommends that the UTQGS information remain available to consumers in the warranty booklets, in the dealers' "point of sale" pamphlets, and on the tires' paper tread label. We recommend that the UTQGS information be removed from the sidewall stamping on the tires.

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IX. Requests for Comments on Particular Issues

Labeling requirements in any foreign or international standard:

The tire industry is global in scope and application. Basic tire designs and manufacturing techniques and materials are, for the most part, consistent throughout the various regions of the world. Regulators in the various countries should be cognizant of this fact and avoid

promulgation of redundant labeling, performance, and certification requirements that amount to non-tariff barriers to trade. Such divergent and often duplicative regulations are short sighted, resulting only in added cost for the product, with little or no value added to the consumer. National regulatory bodies from the various countries, such as NHTSA for the U.S., should, without sacrificing national sovereignty, work within the confines of the United Nations Working Party 29, to help eliminate the increasingly diverse labeling criteria required on the sidewalls of tires.

The only labeling requirement in foreign standards that should be considered is the Service Description which is required by many governments around the world. The proposed tire placards in the NPRM (66 Fed. Reg. at 65562, 65563) have service descriptions on every tire listed. The load index number communicates all the load information the vehicle owner needs to know to select the appropriate replacement tires. Any tire with the same load index carries the same load. The only weight limit the vehicle owner/operator needs to know is the combined occupant/cargo weight limit. The proposed statement "The combined weight of occupants and cargo should never exceed XXX pounds", provides an excellent complement to the Load Index number. The vehicle manufacturer determines what the correct Load Index number should be in order for the tires to carry the GVWR. In deciding the correct Load Index number, the vehicle manufacturer also determines the maximum limit for combined weight of occupants and cargo. This combined weight limit is placed on the placard exactly as proposed in the current NPRM. Then, so long as the consumer does not exceed the limit, the recommended Load Index is correct. In selecting replacement tires, the consumer need only match the recommended Load Index number on the placard with the load index number on the replacement tire. What could be more logical?

A speed rating, in the form of a speed symbol, should be required on all tires and on all vehicle tire placards (as shown on the sample vehicle placard and sample tire inflation pressure label, on pages 65562 and 65563 of the NPRM). The consumer would then simply have to match the speed symbol on the tire and vehicle tire placard to assure the proper tire speed capability for their vehicle. Such speed ratings can be used by vehicle manufacturers to match the speed capability of the tire and vehicle.

Consumers should be informed that replacement tires of equal speed rating are recommended. Use of lower speed rating tires will require the vehicle speed to be limited to the lowest rated tire.

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<u>Should the agency prohibit non-required information from sidewalls?</u>

No, the tire industry is global in scope and application. There are other data that may be deemed helpful or otherwise required by various national or regional regulatory bodies. Such markings might include warnings, certification marks, and service conditions.

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Attachment I

Normal Load Requirement

FMVSS 110 4.2.2 states "The vehicle normal load on the tire shall not be greater than the test load in the high speed performance test specified in S5.5 of 571.109 for that tire". 571.109 S5.5.1 states "...with a load of 88 percent of the tire's maximum load rating as marked on the tire sidewall". NHTSA indicates that the proposed high speed test will have a test load of 85 percent of the tire's maximum load rating (see NPRM footnote 27). Therefore, the new regulation will require that the vehicle normal load on the tire shall not exceed 85 percent of the maximum load rating as marked on the tire sidewall.

FMVSS 110 4.1 and 4.2 state the requirements for selection of tire size and operating pressure. The proposed regulation imposes the following basic requirements on the vehicle designer:

1) The vehicle maximum load on the tire shall not be greater than the maximum load rating of the tire,
2) The vehicle normal load on the tire shall not be greater than 85 percent of the maximum load rating of the tire, and
3) The tire load rating at the specified inflation pressure must not be less than the vehicle maximum load and the vehicle normal load on the tire.

The practical effect of the proposed regulation on tire/pressure selection depends on the ratio of the vehicle normal load on the tire (VNL) to the vehicle maximum load on the tire (VML). See Figure 1.

For vehicles with VNL/VML less than 0.85, the vehicle maximum load on the tire becomes the predominant requirement to determine tire size/pressure. Vehicle normal load on the tire will always be less than 85 percent of the tire maximum load rating. Therefore, addition of the vehicle normal load requirement has no effect on tire selection for these vehicles. See Figure 2.

On the other hand, the vehicle normal load requirement is predominant for vehicles with VNL/VML greater than 0.85. The vehicle maximum load on the tire will always be below the maximum load rating. See Figure 3.

It is important to understand that none of the proposed requirements provide a "load reserve" at maximum vehicle load. While some "reserve" may be present at normal load (the amount depends upon the ratio of VNL/VML), there is not a reserve at maximum vehicle load unless the placard pressure is set higher than the minimum pressure required for maximum vehicle load.

The following figures show these relationships with examples. The Tire and Rim Association load pressure relationship for a P235/75R15 tire is shown.

Figure 1
P235/75R15 Operating Range Example per TRA
NHTSA Proposal for Vehicle Normal Load to Not Exceed 85% of Maximum Tire Capacity

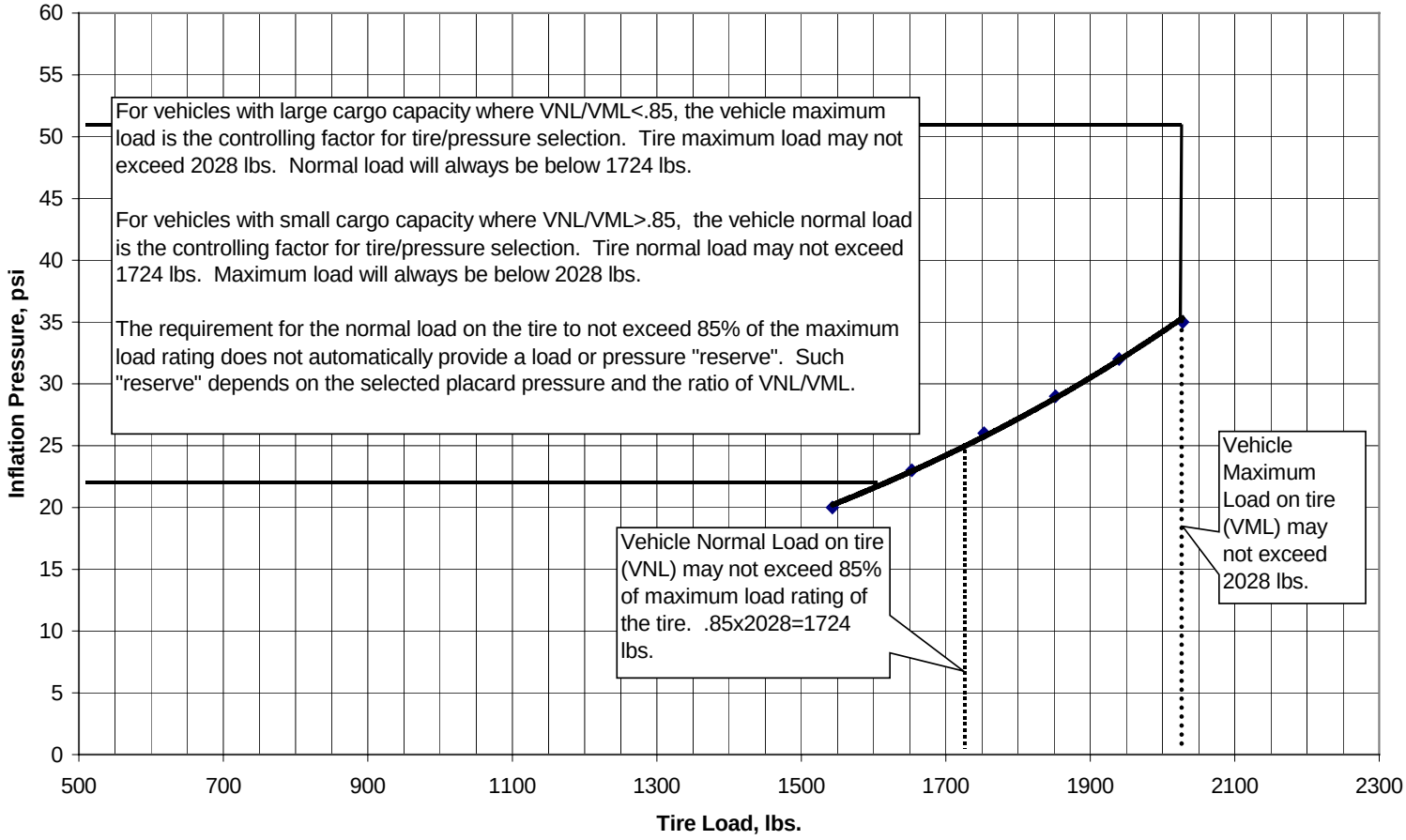


Figure 2
P235/75R15 Operating Range Example per TRA
NHTSA Proposal for Vehicle Normal Load to Not Exceed 85% of Maximum Tire Capacity
Example of Vehicle with VNL/VML<.85

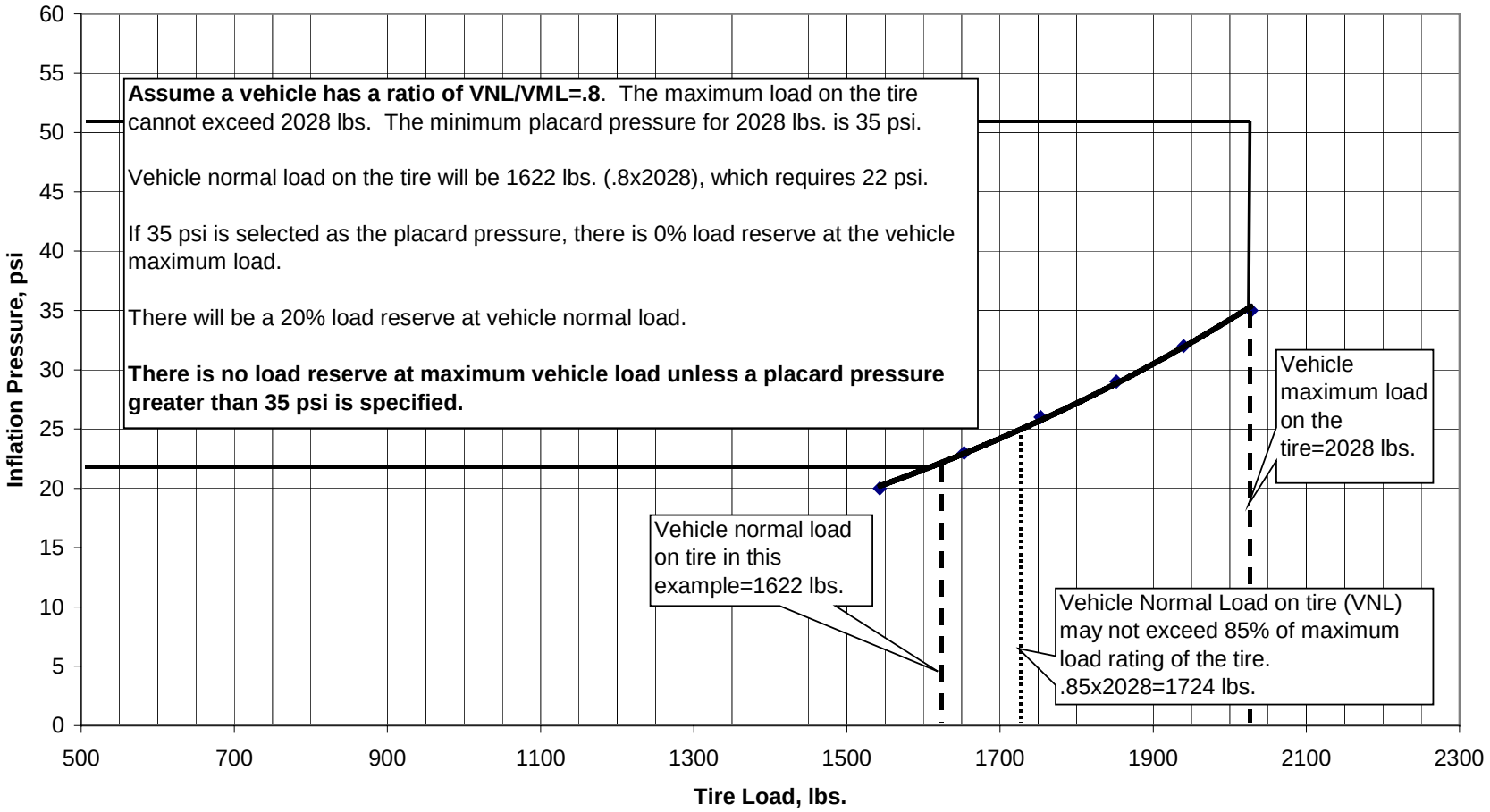
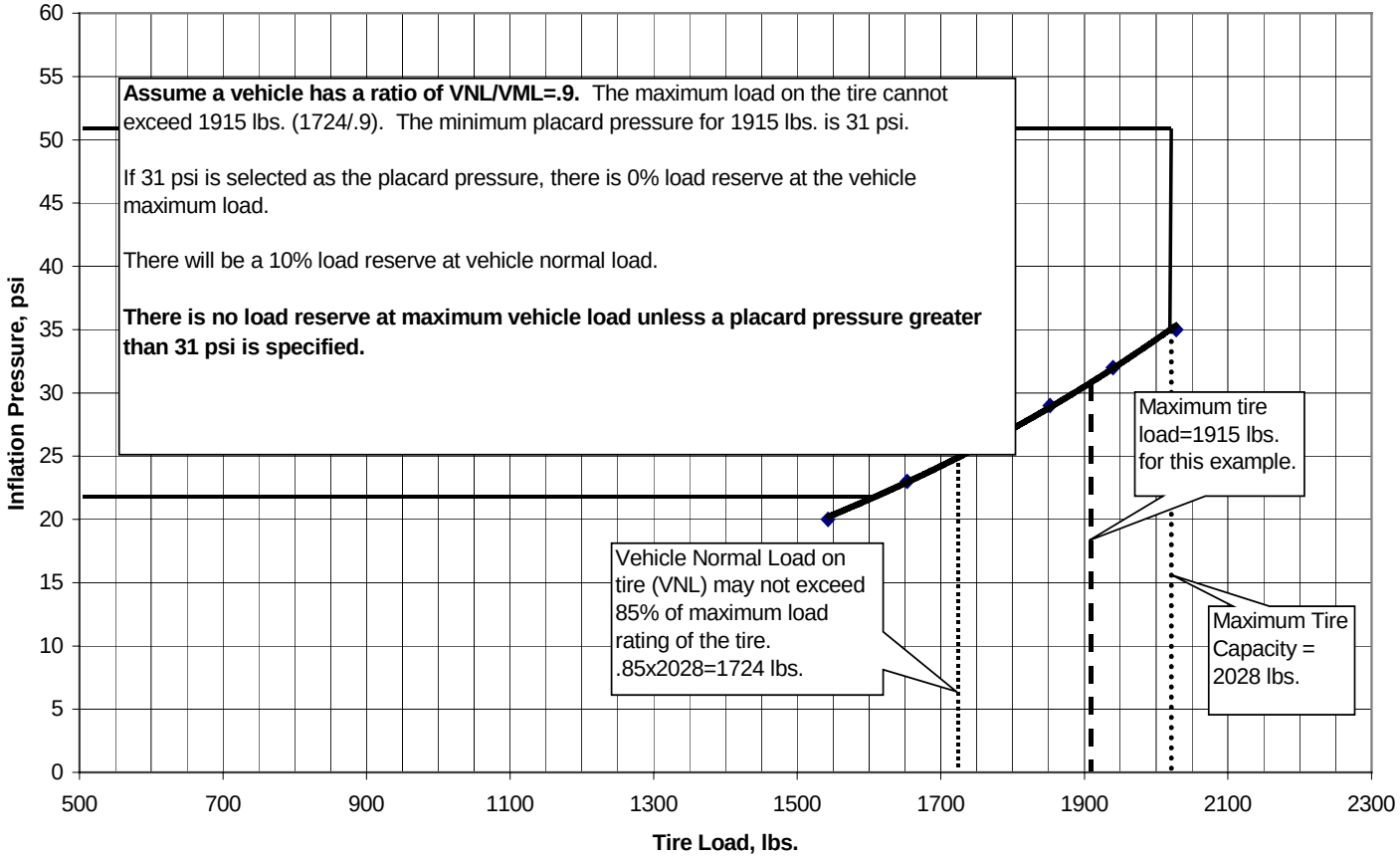


Figure 3
P235/75R15 Operating Range Example per TRA
NHTSA Proposal for Vehicle Normal Load to Not Exceed 85% of Maximum Tire Capacity
Example of Vehicle with VNL/VML>.85



Attachment II

Need for pressure/load reserve requirement for FMVSS 110

Each tire has specific minimum inflation pressures required to carry specific loads, up to the tire's maximum load rating. This relationship between tire inflation pressure and tire load carrying capability is established by tire standardizing bodies such as The Tire and Rim Association. For example, for a P215/60R16 tire size, the relationship is as follows:

Load (pounds)	Minimum Pressure (psi)
1477 (tire's maximum load rating)	35
1411	32
1345	29
1279	26
1201	23
1124	20

Any pressure below the minimum pressure required to carry the load being applied to the tire results in over-deflection of the tire and the risk of tire failure.

Assume that a P215/60R16 tire is being fitted on a passenger car with a VEHICLE MAXIMUM LOAD ON THE TIRE of 1279 pounds and a VEHICLE NORMAL LOAD ON THE TIRE of 1124 pounds. In this example, the fact that the VEHICLE NORMAL LOAD ON THE TIRE is less than 85 percent of the tire's maximum load rating does not automatically provide a pressure/load reserve. The amount of pressure/load reserve, if any, depends on the placard pressure selected for this vehicle.

The tire industry considers a tire to be “significantly under-inflated” (over-deflected) when the actual inflation pressure falls below the minimum pressure required to carry the load the tire is supporting. In our example, when the vehicle is applying 1279 pounds on a tire and the inflation pressure drops below 26 psi (the minimum pressure required for this tire size to support 1279 pounds), the tire is “significantly under-inflated”.

In the NPRM for Tire Pressure Monitoring Systems (TPMS), NHTSA says that a tire is "significantly under-inflated" when the inflation pressure falls 20 percent below the vehicle placard tire inflation pressure (for vehicles equipped with direct measuring TPMS) or 25 percent below the vehicle placard tire inflation pressure (for vehicles equipped with indirect measuring TPMS). Inflation pressures 20 to 25 percent below the vehicle placard pressure may result in over-deflection of tires and the risk of tire failures, unless an additional PRESSURE/LOAD RESERVE is included in the vehicle placard pressure.

In order to use the NHTSA definition of "significantly under-inflated", while ensuring that tires are not over-deflected, NHTSA needs to add a minimum PRESSURE/LOAD RESERVE requirement to FMVSS 110. This PRESSURE/LOAD RESERVE must be included in the calculations to determine the minimum pressure needed for the vehicle placard tire inflation pressure. The amount of PRESSURE/LOAD RESERVE required will depend on the capabilities of the TPMS specified by NHTSA in FMVSS 138. The operator of the vehicle must be warned when any tire pressure falls below the minimum pressure required to carry the load the tire is supporting. In our example, the PRESSURE/LOAD RESERVE requirement in FMVSS 110 would result in a vehicle placard pressure of at least 33 psi for a vehicle equipped with a TPMS having a capability of 20 percent or a placard pressure of at least 35 psi for a vehicle equipped with a TPMS having a capability of 25 percent. In either case, the TPMS would warn the operator when the tire pressure falls below the 26 psi needed to carry the load of 1279 pounds.

Vehicle manufacturers already voluntarily provide an adequate PRESSURE/LOAD RESERVE in many of the light vehicles on the road today, but some do not. Universal application of this PRESSURE/LOAD RESERVE requirement for all light vehicles will provide for a reasonable and practicable standard; one that enhances the safety of the motoring public as required by both the TREAD Act and the Motor Vehicle Safety Act.

RMA recommended specific changes to 571.110:

S3. Definitions

PRESSURE/LOAD RESERVE means the amount of pressure difference between the vehicle placard tire inflation pressure and the minimum pressure required to support the VEHICLE MAXIMUM LOAD ON THE TIRE. The minimum PRESSURE/LOAD RESERVE required on a vehicle depends on the capability of the TPMS used on the vehicle.

S4.2 Tire load limits.

S4.2.1 The VEHICLE MAXIMUM LOAD ON THE TIRE shall not be greater than the load corresponding to the vehicle placard tire inflation pressure, reduced by the PRESSURE/LOAD RESERVE, for the tire size shown on the vehicle placard.

S4.2.1.1 The PRESSURE/LOAD RESERVE must be adequate to allow tire inflation pressures to fall by an amount equal to the capability of the TPMS on the vehicle, and still maintain sufficient tire pressure to support the VEHICLE MAXIMUM LOAD ON THE TIRE. The minimum PRESSURE/LOAD RESERVE can be calculated as follows:

$$P/LR(min.) = VPP(min.) \times .XX$$

where:

P/LR(min.) = Minimum PRESSURE/LOAD RESERVE
VPP(min.) = Minimum Vehicle Placard Tire Inflation Pressure
XX = Capability of the TPMS on Vehicle (expressed as a %)

The minimum vehicle placard tire inflation pressure can be calculated as follows:

$$VPP(min.) = VMLP / (1 - .XX)$$

where:

VPP(min.) = Minimum Vehicle Placard Tire Inflation Pressure
VMLP = Pressure Corresponding to the VEHICLE MAXIMUM LOAD ON THE TIRE
XX = Capability of the TPMS on Vehicle (expressed as a %)

S4.3.2(c) (in NPRM on page 65561) The tire load rating specified in a submission by an individual manufacturer, pursuant to S4.1.1(a) of 571.139 or contained in one of the publications described in S4.1.1(b) of 571.139, for the size tire at that inflation pressure, reduced by the PRESSURE/LOAD RESERVE, is not less than the VEHICLE MAXIMUM LOAD ON THE TIRE.

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Attachment III

Tire Labeling Cost Summary

Global cost estimates, by RMA member companies, for adding a second TIN and reordering the TIN are shown below. RMA member companies include: Bridgestone/Firestone Americas Holding, Inc.; Continental Tire N.A.; Cooper Tire & Rubber Company; The Goodyear Tire and Rubber Company; Michelin North America, Inc.; Pirelli Tire North America; and Yokohama Tire Corporation. The figures below do not include estimates for various other tire manufacturers who import tires to the U. S. (e.g. Toyo, Kumho, or Hankook), nor does it include costs that would be incurred by the non-RMA member tire manufacturers around the world who certify their tires to DOT. These cost estimates also do not contain figures for estimated compliance costs for tire retreaders. The sum total for all tire manufacturers and retreaders would surely be greater than the numbers shown below.

Cost to Add Second TIN	
Revise Drawings for Second TIN	$12,628,600
Rework 101,148 Existing Molds for Second TIN (Including shipping and handling)	$63,368,341
Cost for Additional Equipment	$10,751,000
Mold Rework Lost Production	$26,720,000
Total	**$113,467,941**
Cost to Reorder TIN	
Revise Drawings for Reordered TIN	$6,926,428
Rework Existing Molds for Reordered TIN (Including shipping and handling)	$52,153,163
Computer Systems Reprogramming	$4,006,600
Mold Rework Lost Production	$20,811,000
Total	**$83,897,191**
Total One-time Cost to Add Second TIN and Reorder TIN	**$197,365,132**
Annual Recurring Costs for Second TIN	
Labor to Change TIN Weekly (52 Weeks/year)	$34,718,055
Lost Production During Down-time to Change TIN	$189,388,650
Total	**$224,106,705**

Attachment IV

Part 574 – Tire Identification and Record Keeping
§574.5 Tire identification requirements

Figures 1 and 2

RMA Recommendations for placement, size, and spacing of information

With restored inadvertent omission of statement:

"* Use 5/32" lettering for tires of less than 6.00 inch cross section width as well as those less than 13 inch bead diameter."

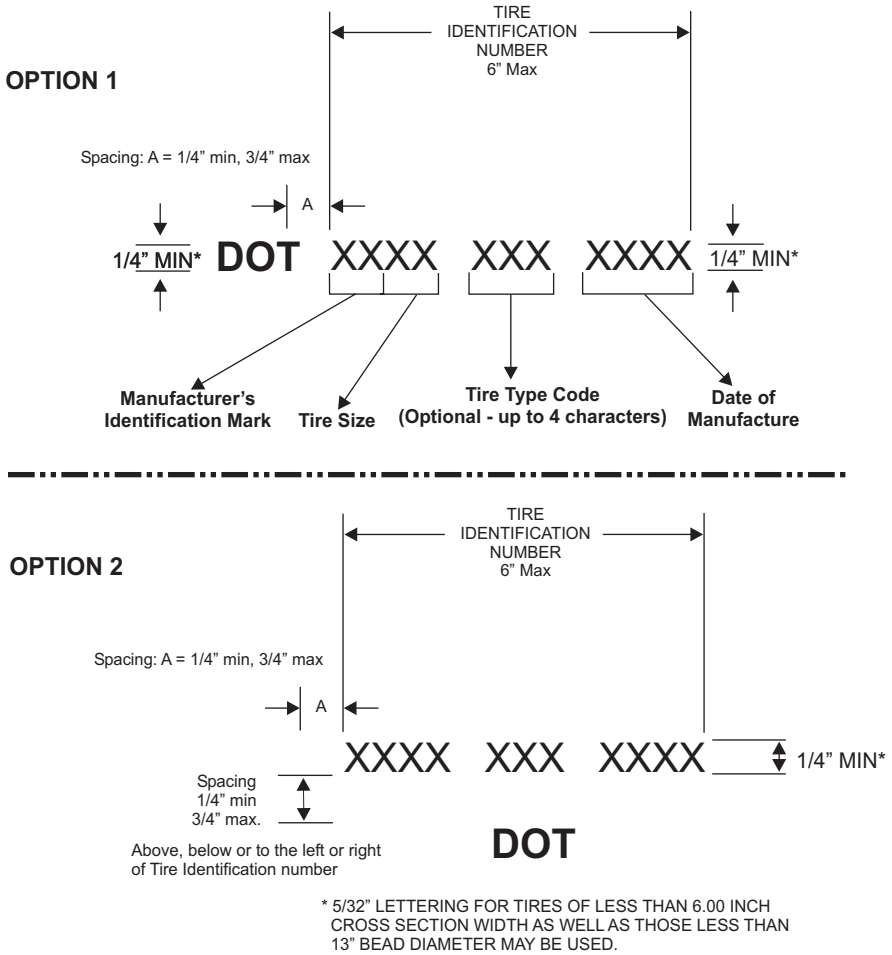

FIGURE 1: IDENTIFICATION NUMBER FOR NEW TIRES

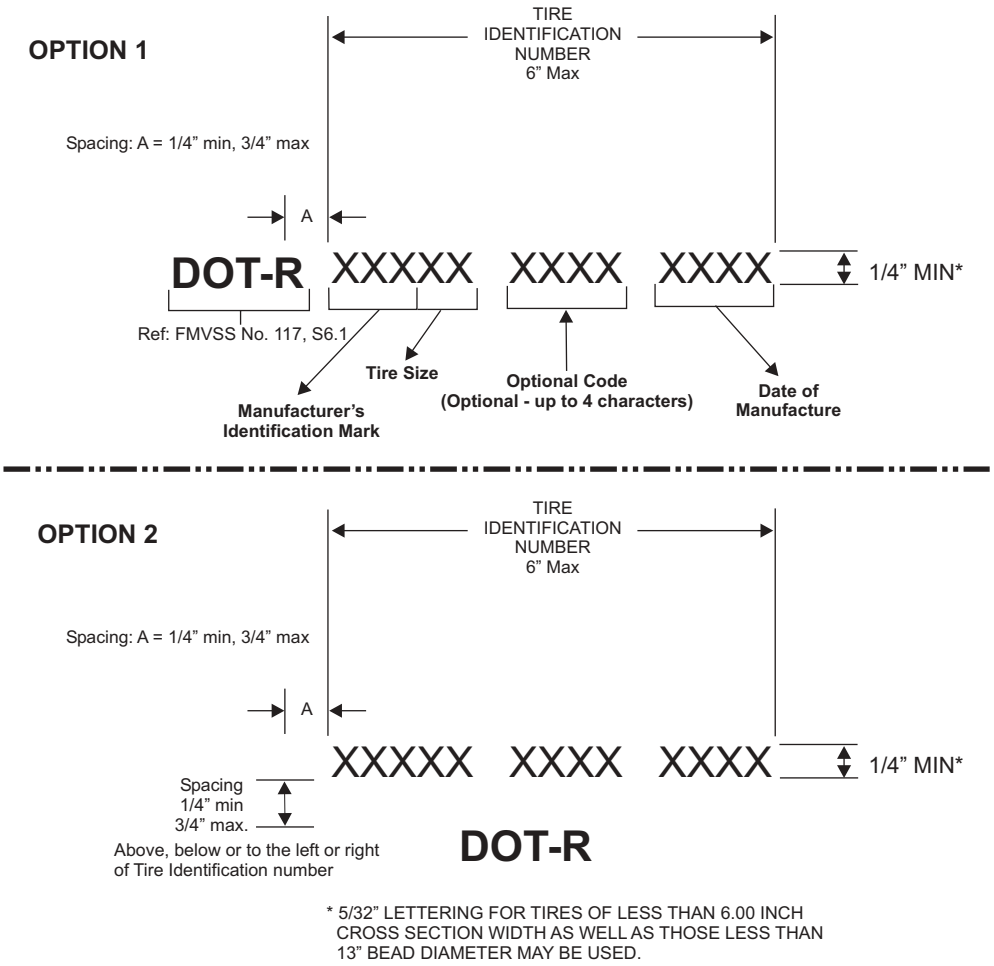

FIGURE 2: IDENTIFICATION NUMBER FOR RETREADED TIRES